

## CLAIMS

What is claimed is:

1. An insulation material for use in a rocket motor, comprising:  
a low-density ethylene propylene diene monomer polymer;  
at least one flame-retardant; and  
a polymeric organic filler.
2. The insulation material of claim 1, wherein the at least one flame-retardant comprises at least one organic flame-retardant and at least one inorganic flame-retardant.
3. The insulation material of claim 1, wherein the polymeric organic filler comprises a chlorinated hydrocarbon.
4. The insulation material of claim 1, wherein the polymeric organic filler comprises a noncyclic hydrocarbon.
5. The insulation material of claim 1, wherein the polymeric organic filler comprises at least one chlorine atom per repeat unit.
6. The insulation material of claim 1, wherein the polymeric organic filler comprises polyvinyl chloride.
7. A rocket motor, comprising:  
an insulation material disposed between an inner surface of a case of the rocket motor and a propellant, the insulation material comprising a low-density ethylene propylene diene monomer polymer, at least one flame-retardant, and a polymeric organic filler.

8. The rocket motor of claim 7, wherein the at least one flame-retardant comprises at least one organic flame-retardant and at least one inorganic flame-retardant.

9. The rocket motor of claim 7, wherein the polymeric organic filler comprises a chlorinated hydrocarbon.

10. The rocket motor of claim 7, wherein the polymeric organic filler comprises a noncyclic hydrocarbon.

11. The rocket motor of claim 7, wherein the polymeric organic filler comprises at least one chlorine atom per repeat unit.

12. The rocket motor of claim 7, wherein the organic filler comprises polyvinyl chloride.

13. The rocket motor of claim 7, wherein the polymeric organic filler comprises polyvinyl chloride.

14. A method of insulating a rocket motor comprising:  
producing an insulation material comprising a low-density ethylene propylene diene monomer polymer, at least one flame-retardant, and a polymeric organic filler; and  
applying the insulation material to an inner surface of a case of the rocket motor.

15. The method of claim 14, wherein producing an insulation material comprising at least one flame-retardant comprises producing an insulation material comprising at least one organic flame-retardant and at least one inorganic flame-retardant.

16. The method of claim 14, wherein producing an insulation material comprising a polymeric organic filler comprises producing an insulation material comprising a chlorinated hydrocarbon.

17. The method of claim 14, wherein producing an insulation material comprising a polymeric organic filler comprises producing an insulation material comprising a noncyclic hydrocarbon.

18. The method of claim 14, wherein producing an insulation material comprising a polymeric organic filler comprises producing an insulation material comprising at least one chlorine atom per repeat unit.

19. The method of claim 14, wherein producing an insulation material comprising a polymeric organic filler comprises producing an insulation material comprising polyvinyl chloride.

20. The method of claim 14, further comprising:  
curing the insulation material to form an insulation layer positioned between the inner surface of the case of the rocket motor and a propellant.